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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/812,066	03/17/2001	Behrang Behin	ONX-108/CIP	9000

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EXAMINER

MACK, RICKY LEVERN

ART UNIT PAPER NUMBER

2873

DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/812,066	BEHIN ET AL.	
	Examiner	Art Unit	
	Ricky L Mack	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-117 is/are pending in the application.
- 4a) Of the above claim(s) 101-117 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-100 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input checked="" type="checkbox"/> Other: <i>Detailed Action</i> . |

DETAILED ACTION

Claim Objections

1. Claims 70-72 and 77 are objected to because of the following informalities: Claim 70 depends from claim 71, and claim 71 depends from itself. Claim 72 is objected from depends from claim 71. Claim 77 depends from itself. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 4, 10, 11, 45, 46, 76 and 77 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not disclose the limitation of a “collimator array being removably attached to module” (*The specification does address a module of reflective array being removably attached*), as in claim 4. The specification does not disclose the limitation of a “fiber coupler having a hole coupled module” as recited in claims 10, 11, 45, 46, 76 and 77.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-100 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In independent claims 1, 42 and 67, the limitation as presented in each of said claims wherein there is interchangeable co-operation with one or more optical components renders the claims indefinite because the "optical component" has been introduced as an element of the claim and its relationship with other structural components is indefinite. Furthermore, the criteria for interchangeable co-operation are not clear. As such, the rejections on the merit follow in a manner as best understood by the examiner.

In claim 61, the phrase "a fold deflector optically coupled between the first and second" renders the claim indefinite because it is not complete. What is the first and second referring to?

Claims not specifically mentioned are rejected based upon their dependence from a rejected claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 5-9, 12, 13, 21, 23-25, 32, 33, 42-44, 47, 65, 67, 69, 74, 75, 78, 79, 83, 84 and 90-94 are rejected under 35 U.S.C. 102(e) as being anticipated by Hoen (6253001).

Hoen discloses, as in claim 1, a beam steering module comprising: one or more beam steering elements (22), wherein the one or more beam steering elements deflect one or more optical signals in two dimensions (see two dimensional array 16, figure 1), wherein the module can cooperate interchangeably with one or more optical components (26 and 28) in an optical beam steering device.

Hoen discloses, as in claim 2, reflective optical components (22, 26, 28).

Hoen discloses (see figure 1), as in claim 3, collimator array (12) mechanically coupled to one or more of the first (16) and second (18) beam steering modules, wherein the collimator array is optically coupled to the at least one beam steering element (22).

Hoen discloses, as in claim 5, optical component includes one or more other beam steering modules (16, 18).

Hoen discloses (see abstract), as in claim 6, the beams steering modules are part of an optical switch.

Hoen discloses (fig. 1, ref. 12 and 14), as in claim 7, optical signals enter and leave the module along substantially parallel paths.

Hoen discloses (fig. 1; col. 5, lines 9-20), as in claim 8, one or more collimators optically coupled to the one or more beam steering elements (22).

Hoen discloses (col. 8, line 52 through col. 9, line 2), as in claim 9, array of photodetectors (*sensors*) clustered around one or more of said one or more collimators.

Hoen discloses, as in claim 12, one or more beam steering elements include a first deflector array (16) optically coupled to a second deflector array (18), wherein the first and second deflector arrays cooperate to steer an optical signal in two dimensions.

Hoehn discloses (see fig. 1), as in claim 13, one or more of the first and second deflector arrays includes an $L \times M$ array of deflectors, where L and M are integers greater than or equal to one.

Hoehn discloses, as in claim 21, wherein the first array includes one or more deflectors (22) configured to rotate about a single first axis.

Hoehn discloses (col. 5, lines 10-56), as in claims 23-25, 32, and 33, wherein the first and second arrays includes one or more deflectors (26) configured to rotate about one or more axis and which would include a fixed axis limitation.

Hoehn discloses, as in claim 42, an optical switch, comprising a first beam steering module (16); a second beam steering module (18) optically coupled to the first beam steering module; wherein at least one of the first and second beam steering modules includes at least one beam steering element (22), wherein the at least one beam steering element deflects an optical signal in two dimensions (see fig. 1), wherein at least one of the first and second modules can co-operate interchangeably with one or more optical components (26 and 28) in the optical switch.

Hoehn discloses (fig. 1, ref. 12 and 14), as in claim 43 wherein the optical signals enter and leave the module along substantially parallel paths.

Hoehn discloses (fig. 1, col. 5, lines 9-20), as in claim 44, the switch further comprising one or more collimators coupled to the at least one beam steering element.

Hoehn discloses, as in claim 47, a collimator array (12) mechanically coupled to one or more of the first (16) and second (18) beam steering modules, wherein the collimator array is optically coupled to the at least one beam steering element (22).

Hoen discloses (figure 1), as in claim 65, wherein the first (16) and second (18) modules are arranged in a substantially planar configuration.

Hoen discloses, as in claim 67, an optical switch comprising at least one beam steering module (16 or 18) having at least one beam steering element (22, or 26), wherein the at least one beam steering element deflects an optical signal in two dimensions (col. 10, lines 10-56), wherein the module can co-operate interchangeably with one or more optical components (26 and 28) in the optical switch.

Hoen discloses (see figure 1, ref. 16 and 18), as in claim 69, wherein the optical components include one or more other beam steering modules.

Hoen discloses (see figure 1), as in claim 74, wherein the optical signals enter and leave the switch along substantially parallel paths.

Hoen discloses, as in claim 75, further comprising one or more collimators (12) optically coupled to the beam steering element.

Hoen discloses (see figure 1), as in claim 78, wherein the at least one beam steering element includes a first deflector array optically coupled to a second deflector array.

Hoen discloses, as in claim 79, wherein one or more of the first (16) and second (18) deflector arrays includes an L.times.M array of deflectors, where L and M are integers greater than or equal to one.

Hoen discloses (col. 5, lines 10-56), as in claims 83, 84 and 92-94, wherein the first and second arrays includes one or more deflectors (26) configured to rotate about one or more axis and which would include a fixed axis limitation.

Hoen discloses (col. 5, lines 10-56), as in claims 86, wherein the deflectors in the first array are optically coupled to the deflectors in the second array in a one-to-one correspondence.

Allowable Subject Matter

8. Claims 14-20, 22, 26-31, 34-41, 48-60, 61-64, 66, 68, 70-73, 80-82, 85, 87, 89-91, 95-100 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is an examiner's statement of reasons for allowability: The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 14-20, 22, 26-31, 34-41, 48-60, 61-64, 66, 68, 70-73, 80-82, 85, 87, 89-91, 95-100, wherein the claimed invention comprises a stack of NxLxM beam steering modules, beam steering elements including a frame, a double-sided array, relay optics, and a curved deflector array, as claimed. The combination of all the claimed features are not anticipated or made obvious by the prior art and all of said features are relied upon for a determination of allowability.

Response to Arguments

10. Applicant's arguments filed 8/25/03 have been fully considered but they are not persuasive. Applicant has not address structure for that can cooperative interchangeably with

one or more optical components in an optical beam steering device. First, this limitation is considered to be very broad and secondly, Hoen discloses, for example, a reflector (22) cooperating interchangeably with one or more optical components (26, 28) is a beams steering device.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricky L Mack whose telephone number is (703) 305-6984. The examiner can normally be reached on Monday-Friday (6:30 AM to 4:00 PM).

Application/Control Number: 09/812,066
Art Unit: 2873

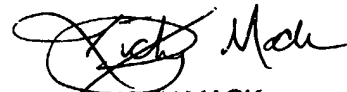
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (703) 308-4883. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

RM
November 17, 2003


RICKY MACK
PRIMARY EXAMINER